

Review of the Genus *Sineugraphe*, with a Newly Recorded Species, *S. stolidoprocta* Boursin (Lepidoptera, Noctuidae) from Korea

Sung-Bok AHN¹⁾ & Vladimir S. KONONENKO²⁾

¹⁾ National Institute of Agricultural Science and Technology, Rural Development
Administration, Suwon, 441-707, Korea

²⁾ Institute of Biology and Pedology, Far Eastern Branch of Russian Academy of Science,
RF-690022 Vladivostok, Russia

Abstract *Sineugraphe stolidoprocta* Boursin, previously known from the central and eastern China, is introduced here and added to the faunal list of Korean Noctuidae. Four species of the genus *Sineugraphe* Boursin, 1954, are recognized in Korea, and their distinctive characters are discussed, with illustrations of the genitalia.

Key words Lepidoptera, Noctuidae, *Sineugraphe stolidoprocta*, new record, Korean Peninsula.

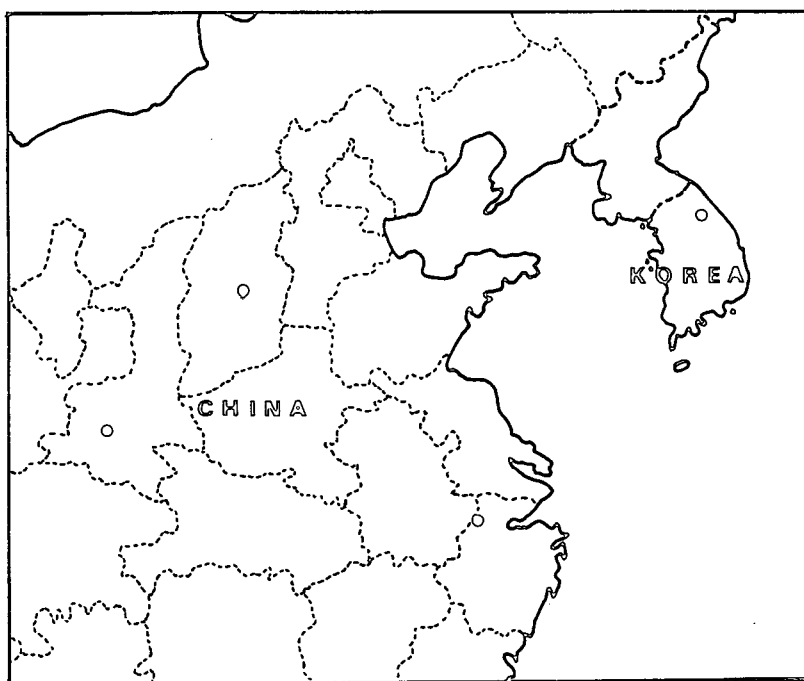
INTRODUCTION

The genus *Sineugraphe* (type species: *Eugraphe disgnosta* Boursin, 1948, by original designation; a junior synonym of *Agrotis bipartita* Graeser, 1888) was described by Boursin (1954) as a small homogenous group of Noctuinae distributed mostly in the eastern part of Palaearctic Region. The generic name, *Sineugraphe*, was erroneously reported in the Catalogue of World Noctuidae, by Poole (1989), as *Sineugrapha* [sic!]. Up to now, six species of the genus known from the eastern Palaearctic Region are as follows: *S. rhitidiprocta* Boursin, 1954; *S. megaptera* Boursin, 1954; *S. stolidoprocta* Boursin, 1954; *S. longipennis* Boursin, 1954; *S. bipartita* Graeser, 1888 (= *disgnosta* Boursin, 1948); and *S. exusta* (Butler, 1878). The first two species are distributed in south western and central China, and the next three species have wider distributions from China to Korea, Japan and the Russian Far East. The last species, *S. exusta*, is distributed from South China to southern Siberia. One more species, *S. carvalhoi* Pinker, 1983, was described from the Azores Islands. Three species of *Sineugraphe* have been known from the Korean Peninsula: *S. longipennis*, *S. exusta*, and *S. bipartita*. *S. disgnosta* Boursin was synonymized with *S. bipartita* by Kononenko (1983) in the revision of the genus *Sineugraphe* from the Russian Far East; however, in Korean literature, this species has been known by its synonymic name, *S.*

disgnosta.

In the course of faunal and taxonomic studies on the Noctuidae of the Korean Peninsula, we found a further species, *Sineugraphe stolidoprocta*, in the collection of National Institute of Agricultural Science and Technology, Rural Development Administration, Suwon, and Center for Insect Systematics, Kangwon National University, Chuncheon: it is herein reported for the first time from the Korean Peninsula. The three species of *Sineugraphe* mentioned above, except *S. stolidoprocta*, are common noctuid moths in Korea. However, identification of them based on external features is extremely difficult because of their similarity in coloration and wing pattern, especially in the case of worn specimens. Moreover, *S. exusta* and *S. bipartita* have parallel morphological forms with black coloration in the discal cell between the reniform and orbicular. The other difficulties for the identification of *Sineugraphe* spp. are due to the sources reported erroneously in many of previous publications. Therefore, we intend to include literature, short diagnosis, and a key for the identification of the four Korean species of *Sineugraphe*.

The following abbreviations are used for collection consulted: [NIAS]-National Institute of Agricultural Science and Technology; [CIS]-Center for Insect Systematics; [FRI]-Forestry Research Institute. Abbreviations for the names of provinces in which collecting sites are belonged are as follows: HB-Hamgyong-bukdo; PN-Pyongan-namdo; GG-Gyunggido; KW-Kangwondo; CN- Chungcheong-namdo; CB- Chungcheong-bugdo; JN-Jeolla-namdo, JB-Jeolla-bugdo; KN-Kyungsang-namdo; KB-Kyungsang-bugdo; CJ-Chejudo. **North**-HB, PN, part of KW of North Korea (DPRK); **Central**-GG, KW, CB, CN; **South**-JB, JN, KB, KN. RGOs in the collector's name mean the Rural Guidance Offices which have operated the light traps in the monitoring system of Rural Development Administration



Map 1. Distribution of *Sineugraphe stolidoprocta* Boursin

Key to Korean species of the genus *Sineugraphe* Boursin in the male genitalia

1. Valva relatively flat, apex of valva rectangular-rounded. Harpe lies on ventral margin of valva, with trapezoidal extension at base (Fig. 4) *S. exusta* Butler
- Valva convex, and rounded at apex. Harpe lies centrally in valva, without trapezoidal extension at base. 2
2. Harpe relatively short, not curved with knee-like shape at base, and fixed in a third from apical part of valva. (Fig. 2) *S. longipennis* Boursin
- Harpe long, curved with knee-like shape at base, fixed in central part of valva. 3
3. Harpe bilobed at tip. Scaphium equal to uncus in length (Fig. 1) *S. stolidoprocta* Boursin
- Harpe without an extension at tip. Scaphium well sclerotized and longer than uncus (Fig. 3) *S. bipartita* Graeser

Genus *Sineugraphe* Boursin, 1954

Sineugraphe Boursin, 1954, Bonn. zool. Beitr. 5: 266

Type species: *Eugraphe disgonosta* Boursin, 1948, Z. wien. ent. Ges. 33: 109, pl. 2, fig. 2

Holotype ♂, Japan: Prov. Hohki, Mt. Daisen (NM. Vienna).

***Sineugraphe stolidoprocta* Boursin, 1954 (Fig. 1) 중국쌍검은밤나방 (신칭)**

Sineugraphe stolidoprocta Boursin, 1954. Bonn. Zool. Beitr. 5: 269, pl. 5: 17, 18, pl. 13: 86 (China, South Shensi).

Diagnosis. Wingspan 46~48 mm. Forewings dark reddish-brown, and main elements of wing pattern similar to those of other *Sineugraphe* spp., but less expressed. Male genitalia (Fig. 1) of *S. stolidoprocta* close to *S. bipartita*. Valva somewhat curved, concave and bigger by twice than that of *S. bipartita*; clasper ridge-like; harpe much bigger than that in *S. bipartita*, a little curved with knee-like shape at base and with short digitate lobe at apex, whereas absent in *S. bipartita* and other *Sineugraphe* spp. Scaphium equal to uncus in length, and less developed than that of *S. bipartita*. Aedeagus much bigger, and with strong scobination on the wall of apical part; vesica bigger and more sacculate than that of *S. bipartita*, with small diverticulum in basal part and single short spin-like cornutus. Female unknown.

Material examined. [CIS]: 2 ♂, Mt. Gyebang-san, KW, 24. VIII. 1989, K.T.Park.

Distribution. Korea (South, Central), Central and Eastern China.

Note. Reported herein for the first time from the Korean Peninsula. It is obvious that Korean species is conspecific with the Chinese species, *S. stolidoprocta*, since Korea is about a thousand kilometer apart from China. Because the identification of this species based on external appearance is very difficult, it also was often misidentified as *S. longipennis* by previous researchers. However, in our point of view, *S. stolidoprocta* is probably a resident species in the Korean Peninsula. The discovery of *S. stolidoprocta* in Korea considerably extended our knowledge about the distribution of this species and shows the influence of the Chinese-Himalayan faunal complex, forming the Noctuidae fauna in the Korean

Peninsula. Migrating habit is not known for the *Sineugraphe* spp.

***Sineugraphe longipennis* Boursin, 1954 (Figs 2, 5) 큰쌍검은밤나방**

Eugraphe longipennis Boursin, 1948, Z. Wien. ent. Ges. 33: 111, pl. 2, fig. 5 (Japan).

Sineugraphe longipennis: Boursin, 1954, Bonn. Zool. Beit. 5: 267(new. comb.); Pak, 1969: 122; Pak, 1970: 38; Shin and Han, 1981: 142; Sugi, 1982a: 234; Sugi, 1982, I: 694, II: 351, pl. 170: 16-19. 360: 8, 11; Shin, 1983: 99; Shin and Yoon, 1989: 89, 101; Kim et al., 1991a: 98; Shin et al., 1991: 43; Shin, 1991: 234; Shin et al., 1992: 319; Park, 1992: 208; Jaros et al., 1992: 86; Park et al., 1993: 202; ESK & KSAE, 1994: 366; Park et al., 1995: 69; Ahn et al., 1995: 155.

Diagnosis. Wingspan 44~52 mm. The species differs from *S. exusta* and *S. bipartita* by bigger size, more lightly reddish tint of forewings, and yellowish suffusion in basal and medial fields. Reniform yellowish, contrasted with ground color, and its basal part diffused. The other elements of wing pattern close to other species. In male genitalia (Fig. 2), Valva elongate and concave; Harpe located on one third from the apical part of valva, relatively short in length and somewhat extended apically. In female genitalia (Fig. 5), segment VIII conical with rhomoidal cut in the middle part. Sclerite VII sclerotized and convex.

Material examined. [NIAS]: 1 ♂, 2 ♀. Suwon, GG, 16. VI, 17, VII, 11. X. 1975, 1976, 1982 J.C. Paik, D.J. IM, K.T. Park; 5 ♂, 1 ♀, Mt. Cheongryae-san, GG, 20. VII, 1976, K.T. Park; 1 ♀, Mt. Suri-san, GG, 31. V. 1989, S.H. Lee; 1 ♀, Mt. Suri-san, 14. VII. 1989, S.D. Lee; 1 ♀, Seosan, CN, 11-15. VII. 1991, RGO; 1 ♂, 2 ♀, Muju, JB, 1-5, 21-25. VII. 1991, RGO; 2 ♀, Isl. Heuksando, JB, 13. IX. 1975, K.T. Park; 1 ♀, Mt. Chiri-san (=Jiri-san), JN, 19. VII. 1981, K.R. Choi; 3 ♀, 24. VII. 1985, Mt. Keum-san, Namhae, KN, K.T. Park; 1 ♂, Yeongcheon, KB, 18-24. IX. 1991, RGO; [CIS]: 2 ind., Mt. Keum-san, Namhae, KN, 24. VII. 1985, K.T. Park; 1 ind., Mt. Odae-san, KW, 6. VIII. 1989, K.T. Park; 1 ind., Sogumgang, KW, 7. VII. 1988, K.T. Park; 1 ind., Mt. Samak-san, KW, 19. VII. 1989, K.T. Park; 1 ind., Mt. Yaksu-san, KW, 9. VII. 1989, K.T. Park.

Previous recorded locality: **North**-PN (Mt. Myohyang-san, Yangdok); **Central**-KW (Mt. Gyeonggang-san, Mt. Cheombong-san), GG (Mt. Gwangduk-san, Mt. Myongji-san, Mt. Whaak-san); **South**-KN (Isl. Koje, Mt. Chiri, Jinyang), JN (Isl. Chindo); **Cheju**-CJ (Cheju)

Distribution. The species is distributed from the eastern China and Taiwan to the Korean Peninsula, Japan and the southern part of the Russian Far East.

***Sineugraphe bipartita* (Graeser, [1889] 1888) (Figs 3, 6) 담색쌍검은밤나방**

Agrotis bipartita Graeser, [1889] 1888, Berl. ent. Zeit. 32: 318 (Russian Far East, Vladivostok.).

Eugraphe disgnosta Boursin, 1948, Z. Wien. Ent. Ges. 33: 109, pl. 2 : 2, pl. 6: 15, 16 (Japan, Hohi prov., Mt. Daisen).

Diarsia exusta nolimetangere Bryk, 1948, 65, pl. 4: 17 (Korea, Shuotsu).

Sineugraphe dysgnosta: Boursin, 1954: 266(emend.); Pak, 1969: 122; Shin and Han, 1981: 142; Kim et al., 1982: 314, 726; Lee et al., 1985: 386; Kim et al., 1986: 72; Kang et al., 1987: 34; Kim et al., 1987: 100; Park et al., 1988: 66; Park et al., 1990: 389; Kim, 1993: 348..

Sineugraphe disgnosta: Boursin, 1954: 266; Shin, 1985, 31; Shin, 1987: 402; Shin and Yoon, 1989: 43, 89, 101, 110; Shin et al., 1990: 285; Shin and Kim, 1991: 35; Kim et al., 1991a: 97; Shin, 1991: 234; Shin et Cheong, 1992: 319; Jaros et al., 1992: 85, 86; Park et al., 1993: 202; Nam, 1995: 215.

Sineugrapha [sic] *biparita*: Park et al., 1995: 69.

Sineugraphe dysgnoste [sic]: Park et Yoo, 1986: 36.

Sineugraphe bipartita: Kononenko, 1983: 121 (synonymy, res. stat.); Jaros et al., 1992: 84; Jeong et al., 1995: 17; ESK & KSAE, 1994: 366; Sugi, 1994: 80.

Diagnosis. Wingspan 36~45 mm. The wing pattern similar to that of *S. exusta*. Ground color of forewing variable from reddish-brown to dark violet brown, especially in females, and usually more tint than that of *S. exusta*. The form, *S. bipartita* f. *nipponica* Ogata has dark spots in cell and differs from *S. exusta nigromaculata* Graeser. In male genitalia (Fig. 3), scaphium longer than uncus; valva curved and concave; harpe curved with knee-like shape in basal part, without extension on tip. In female genitalia (Fig. 6), segment VIII cylindrical with rounded incision medially. Sternite VII well sclerotized and slightly concave on distal margin.

Material examined. [NIAS]: 2 ♂, 1 ♀, Daegwanryong, KW, 24. VII. 1976, K.S.Woo; 1 ♀, Chuncheon, KW, 1. V. 1989, K.T.Park; 1 ♂, 1 ♀, Hongcheon, KW, 10-14. VIII. 1991, RGO; 1 ♂, 3 ♀, Mt. Cheongyae-san, GG, 20. VIII. 1976, K.T.Park; 1 ♀, Wonju, KW, 1-5. VII. 1991, RGO; 1 ♂, 1 ♀, Mt. Odae-san, KW, 12. IX. 1976, J.C.Paik, Y.Y.Ha; 1 ♂, Yangju, GG, 1-5. VII. 1991, RGO; 3 ♂, 6 ♀, Suwon, GG, 4. VI, 22. VI, 5. VII, 16. VII, 18. VIII, 16. IX. 1959, 1975, 1976, Giyongua, K.T.Park, J.C.Paik, K.T.Park, K.R.Choe; 2 ♀, Seosan, CN, 11-15. VII, 1-5. VIII. 1991, RGO; 1 ♀, Kimje, JB, 26-30. VIII. 1991, RGO; 5 ♀, Isl. Heuksando, JB, 7, 8. VII, 25. VIII, 13. IX. 1975, K.T.Park; 1 ♀, Muju, JB, 11. VIII. 1975, K.T.Park; 1 ♂, Mt. Chiri-san, JN, 17. VII. 1976, Y.Y.Ha; 1 ♀, Geochang, KN, 19. VII. 1991, RGO; 2 ♀, Kanra-san, Isl. Saishuto (present correct name is Mt. Halla-san, Isl. Chejudo), CJ, 29. VI, 2. VII. 1922, H.Okamoto et T.Kurisue; 1 ♀, Umon, Isl. Saishuto (Isl. Chejudo), CJ, 2. VII. 1922, H.Okamoto et T.Kurisue; 1 ♀, Seoguiipo, CJ, 10. VII. 1976, H.S.Kim; 3 ♂, 5 ♀, Makaen, (present name and area is uncertain), 1. VIII. 1924, H.Okamoto et T.Kurisue; 1 ♂, 1 ♀, Onseiri, (present name is uncertain), 25. VII. 1924, H.Okamoto et T.Kurisue; 1 ♀, Daijenji, (present name is uncertain), 1. VIII. 1924, Y.Hasegawa et S.Maruta; 1 ♂, 3 ♀, Yutenji, (present name is uncertain), 31. VII. 1924, H.Okamoto et T.Kurisue; [CIS]: 3 ind., Mt. Samak-san, KW, 19. VII. 1990, S.Y.Joo and D.S.Park, K.T.Park; 11 ind., Mt. Gyeonggang-san, KW, 2. VIII, 24. VIII. 1989, K.T.Park; 2 ind., Pyongchang, KW, 31. VII. 1991, K.T.Park; 4 ind., Mt. Seolak-san, KW, 25. VII. 1989, K.T.Park; 2 ind., Mt. Yaksu-san, KW, 9. VIII. 1989, K.T.Park; 1 ind., Sogumgang, KW, 8. VIII. 1988, K.T.Park; 1 ind., Chuncheon-dam, KW, 26. VIII. 1988; 1 ind., Mt. Odae-san, KW, 6. VII. 1989, K.T.Park; 1 ind., 1 ind., Gwangreung, GG, 6. VII. 1989, K.T.Park; 2 ind., Seonheulri, CJ, 22. VII, 1. VIII. 1993, S.H.Jeong; 2 ind., Yeongsil, CJ, 22. VIII. 1992, K.T.Park & B.K.Byun; Gwaneumsa, CJ, 13. VIII. 1993, B.K.Byun & H.P.Jeong.

Previous recorded locality: **North**-HB (Shuotsu=Jueul), PN (Mt. Ryongak-san, Mt. Myohyang-san), GW (Mt. Kumgang-san); **Central**-KW (Mt. Samak-san, Mt. Gyeonggang-san, Mt. Seolak-san, Mt. Sobaeg-san, Mt. Taebaek-san), GG (Mt. Jugum-san, Mt. Gwangduk-san, Mt. Baikun-san, Mt. Myongji-san, Mt. Whaak-san, Mt. Wunak-san); **South**-JN (Mt. Mudeung-san), CN (A-San Bay), KN (Koje Isl.,

Sosangmyon-Hamyang, Mt. Chiri-san, Chinju, Kumgokmyon-Jinyang); **Cheju**-CJ (Isl. Cheju, Cheju, Gwaneumsa, Yongjingak, Gaemidung, Yeongsil, Paekrokdam, Seoguipo)

Distribution. The species is known from Western China to Korea, Japan and South of the Russian Far East (Primorye, south of Khabarovsk and Amur Territories, South of Sakhalin Isl.).

***Sineugraphe exusta* (Butler, 1878) (Figs 4, 7) 쌍검은밤나방**

Graphiphora exusta Butler, 1878, Ann. Mag. nat. Hist. (5)1: 164 (Japan, Yokohama, Hakodate); Leech, 1900: 44 (Korea).

Agrotis exusta: Staudinger, 1892: 413; Hampson, 1903: 413; Herz, 1904: 273; Doi, 1938: 4; Cho, 1963: 183; MCI, 1968: 252; Seok, 1970: 84.

Agrotis exusta nigromaculata Graeser, [1889] 1888. Berl. ent. Zeit. 32: 317 (Russian Far East, Vladivostok); Herz, 1904: 274; Cho, 1963: 184; MCI, 1968: 252; Seok, 1970: 84.

Rhyacia oceanica Kardakoff, 1928. Ent. Mitt. 17: 418, pl. 9: 1 (Russian Far East, Vladivostok).

Rhyasia exusta: Okamoto, 1924: 110.

?*Rhyasia exusta nigromaculata*: Okamoto, 1924: 111.

Sineugraphe exusta: Pak, 1959: 4; Hyun et Woo, 1969: 176; Shin and Koo, 1974: 142; ZSK, 1975: 72; Jun and Shin, 1980: 433; Shin and Han, 1981: 142; Kim and Nam, 1982: 140; Yoon et al., 1982: 28; Sugi, 1982: 693, pl. 170, figs. 6-8, pl. 369, fig. 9, 12; Kim et al., 1982: 314, 725; Shin, 1983: 99; Shin, 1984: 132; Kim and Nam, 1984: 318; Lee et al., 1985: 386; Kim et al., 1986: 72; Park and Cho, 1986: 130; Shin, 1987: 402; Kang et Park, 1987: 34; Shin and Yoon, 1989: 59; Shin and Yoon, 1989: 101; Kim et al., 1991a: 97; Shin et Ju, 1991: 43; Shin, 1991: 234; Shin et Cheong, 1992: 319; Jaros et al., 1992: 84, 85; Kim, 1993: 348; Park et al., 1993: 202; ESK & KSAE, 1994: 366; Sohn, 1994: 50; Ahn et al., 1995: 155; Nam, 1995: 215.

Sineugrapha [sic] *exusta*: Park et al., 1995: 69.

Sineugraph [sic] *exusta*: Park et O, 1988: 64.

Sineugraphe exusta nigromaculata: Kim, 1993: 348.

Diagnosis. Wingspan 36~42 mm. Forewings reddish-brown or violet-brown to brown. Wing pattern weak and its elements variable in degree of expressing. Inner line weak, sometimes not represented. Reniform and orbicular weakly contrasted and bordered with thin pale line. The cell between reniform and orbicular brown, sometimes darker than background color. Outer line almost diffused. Subterminal field dark-brown. The form, *S. exusta nigromaculata* differs by dark, black trapezoid spots in the cell before reniform and between reniform and orbicular. Male genitalia (Fig. 4) differs from that of other species by short scaphium, valva flat with trapezoid flat extension at base of valva. In female genitalia (Fig. 7), segment VIII cylindrical, rectangularly incised medially. Sternite VII of abdomen strongly sclerotized and convex on distal margin.

Material examined. [NIAST]: 2 ♀, Chuncheon, KW, 1. V. 1989, K.T.Park; 3 ♀, Mt. Odae-san, KW, 12. IX. 1976, Y.Y.Ha, J.C.Paik; 4 ♀, Suwon, GG, 13. VII, 20. VIII, 24. VIII, 11. X. 1975, 1976, 1985, 1989, M.W.Han, K.T.Park, S.B. Ahn; 1 ♂, Mt. Cheongye-san, GG, 20. VIII. 1976, K.T.Park; 1 ♂, Yangju, GG, 26-30. VIII. 1991, RGO; 3 ♂, 1 ♀, Seosan, CN, 1-5, 6-10. VII. 1991, RGO; 1 ♀, Muju, JB, 16-20. VII. 1991, RGO; 2 ♀, Isl. Heuksando, JB, 3. VIII, 13. IX. 1975; 1 ♀, Umon, Is. Saishuto (=Isl. Chejudo), CJ, 2. VII. 1922, H.Okamoto et T.Kurisue; 1 ♂, Seoguipo, CJ, 10.

VIII. 1976, H.S.Kim; 3 ♀, Seongpanak, CJ, 1, 2. VIII. 1984, K. S. Lee; 1 ♀, Makaen, (present name is uncertain), 1. VIII. 1924, H.Okamoto et T.Kurisue; 1 ♀, Shakuoji (present name is Seokwangsa Temple), 24. VII. 1922, T.Kurisue; [CIS]: 2 ind., Mt. Gyeong-bang-san, KW, 24. VIII. 1989, K.T.Park; 1 ind., Mt. Odae-san, KW, 26. VI. 1989, K.T.Park; 4 ind., Mt. Seolak-san, KW, 25. VIII. 1989, K.T.Park; 1 ind., Topyong, CJ, 9. VI. 1993, K.T.Park; 5 ind., Gwaneumsa, CJ, 6. VII, 13, VIII. 1993, K.T.Park, B.K.Byun & H.P.Jeong; 1 ind., Namup, CJ, 12. VIII, 1993, B.K.Byun & H.P.Jeong; 2 ind., Bijarim, CJ, 15. VII. 1993, K.T.Park; 1 ind., Seonheulri, CJ, 22. VII. 1993, S.H.Jeong; [FRII]: 1 ex, Gwangneung, GG, without collecting date.

Previous recorded Locality: **North**-HB (Shuotsu=Jueul), KW (Mt. Kumgang-san), PN (Mt. Ryongak-san-Pyongyang, Mt. Myohyang-san); **Central**-Seoul (Cheonryangri), GG (Mt. Gwangduk-san, Mt. Baekdeok-san, Mt. Soyo-san, Mt. Yongmun-san, Mt. Whaak-san), KW (Mt. Sobaeg-san, Mt. Chiak-san, Mt. Cheombong-san, Mt. Gyeong-bang-san, Mt. Seolak-san, Donghae-city), CN(A-San Bay); South - JB (Mt. Naejang-san, Gucheundong-Muju), JN (Isl. Chindo), KN (Isl. Kojedo, Mt. Chiri-san, Piagol, Sosangmyon-Hamyang, Chinju, Mt. Paegun, Mt. Hwangso-san); **Cheju**-CJ (Isl Chejudo, Cheju, Gwaneumsa, Tamna Valley, Yeongsil, Yongjingak, Paekrokddam, Seoguipo, Seongpanak, Mt Halla-san)

Distribution. The species is distributed from Western China to the Korean Peninsula, Japan, Russian Far East (including South Sakhalin and South Kuril islands), Mongolia, Transbaikalia, South Siberia to Altai Mts.

ACKNOWLEDGEMENTS

We would like to express our thanks to Prof. K. T. Park, Center for Insect Systematics, Kangwon National University, Chuncheon and Dr. M. H. Lee, Dept. of Crop Protection, National Institute of Agricultural Science and Technology, Rural Development Administration, Suwon, for their kindness, allowing us to examine specimens in the collections and for their constant encouragement in our work.

REFERENCES

- Ahn, S.B., L. Ronkay and K.T. Park, 1995. Faunistic Data of Noctuidae from Chejudo (Lepidoptera). *Ins. Koreana Suppl.* 5: 149-194.
- Ahn, S.B., V.S. Kononenko and K. T. Park, 1994. New records of Noctuidae (Lepidoptera) from the Korean Peninsula (I). Trifinae. *Ins. Koreana* 11: 26-47.
- Boursin, Ch. 1948. Neue palaearktische *Agrotis*-Arten aus dem Naturhistorischen Museum in Wien nebst synonymie-notizen. *Z. Wien. ent. Ges.* 33: 111, pl. 2, fig. 5 [Japan]. 33: 109, pl. 2 : 2, pl. 6: 15, 16.
- Boursin, Ch., 1954. Die "Agrotis" Arten aus Dr. h. s. H. Hone's ausbeuten (Beitrage zur Fauna Sinica). *Bonn. Zool. Beitr.* 5: 213-309, 14 plate.
- Bryk, F., 1948. Zur kenntinis der Grossschmetterlinge von Korea Patrs 2. *Ark. Zool.*, 41A(1): 1-225, 7 pls.
- Butler, A.G., 1878. Descriptions of new species of Heterocera from Japan. Part 2. Noctuities. *Ann. Mag. Nat. Hist.* (5)1: 161-169.
- Cho, P.S., 1963. Insects of Quelapaert Island (Cheju-do). *Bull. Lib. Art. Univ. Korea* 6: 159-242.
- Doi, H. 1938, A list of moths in Korea. *Bull. Sci. Soc. Jpn (Kagakkukanpo)*, 76: 4-7.

- ESK & KSAE (The Entomological Society of Korea & Korean Society of Applied Entomology), 1994. *Check List of Insects from Korea*. pp. 364-382.
- Graeser, L., [1889] 1888. Beitrage zur kentnis der Lepidopteren-fauna des Amurlandes. *Ber. ent. Z.*, 32: 309-414.
- Herz, O., 1904. Lepidoptera von Korea. Noctuidae & Geometridae. *Ann. Mus. Zool. Acad. Imp. Sci. St. Petersburg*, 9: 263-390.
- Hyun, J.S. and K.S. Woo, 1969. Insect Fauna of Mt. Jiri (I). *Seoul Nat. Univ. Forests* 6: 157-202.
- Jaros, J., K. Spitzer, J. Havelka and K.T. Park, 1992. Synecological and biogeographical outlines of Lepidoptera community in North Korea. *Ins. Koreana*, 9: 78-104.
- Jeong, H.C., S.J. Kim and S.S. Kim, 1995. Moths collected at Mudeung, Kwangju-si in Autumn, 1994. *J. Lepid. Soc. Korea*, 8: 13-20. [in Korean with English abstract].
- Jun, J.H. and Y.H. Shin, 1980. Notes on the Moth Fauna of Guchundong, Muju-Gun, Jeolla Bukdo. *Thesis Collection, Kyung Hee Univ.*, Seoul. Korea, 10: 423-438. [in Korean with English abstract].
- Kang, C.-H. and J.-S. Park, 1987. On the Moth Fauna in Sosang-myon, Kyongsangnam-do, Korea. *J. Nat. Sci.* Vol. 3: 27-43. Gyongsang Natl. Univ. [in Korean].
- Kardakoff, N., 1928. Zur kenntnis der Lepidopteren des Ussuri-gebietes. *Ent. Mitt.*, 17: 414-425, 2 plates.
- Kim, J.I. and K.S. Chang, 1987. Insect fauna of the Mt. Taebaek in Korea. *The Report of KACN*. 25: 91-120. [in Korean with English abstract].
- Kim, C.W. and J.S. Park, 1991. *Insect Fauna of the Mt. Chiri in Korea*. Nature educational center of Kyongnam Province. pp. 91-98. [in Korean].
- Kim C.W., S.H. Nam. and S.M. Lee, 1982. *Illustated Flora & Fauna of Korea* Vol. 26. Insecta. (VIII): 282-534, 713-813. [in Korean with synonymic list].
- Kim, C.W. and S.H. Nam, 1982. Insect Fauna of Seoul City Area. *Bull. Sci. & Tech., Korea Univ.* 23: 125-176. [in Korean].
- Kim, C.W. and S.H. Nam, 1984, On the relation between the Insect Fauna and the vegetation in Mt. Sorak. *Report of Academic Survey for Mt. Sorak, Kangwon-do*. pp. 303-340. [in Korean].
- Kim, T.Y., S.H. Nam and C.W. Kim, 1986. A Study on the Moth Fauna at A-San Bay Area. *J. Natl. Acad Sci Korea, Nat. Sci.* (25): 49-110. [in Korean].
- Kim, W.T., 1993. Report for Chejudo (濟州道誌) 1: 341-349. [in Korean].
- Kononenko, V.S., 1983. The Noctuid moths of the genus *Sineugraphe* Brsn. (Lepidoptera, Noctuidae) from the Far East of the USSR.-Sistematika i ekologicheskyy obzor otdel'nyh otryadov nasekomyh Dalnego Vostoka. Vladivostok: 119-124 (in Russian).
- Leech, J.H., 1900a, Lepidoptera Heterocera from Northern China, Japan and Corea. Part. 1. *Trans. ent. Soc. Lond*, 1900: 9-191.
- Lee, Y.I., W.T. Kim and D.H. Kim. 1985. *Insect Fauna of Halla Mountain*. Faunal Survey Report of Natural Protection Area, Mt. Halla. pp. 381 -387. [in Korean].
- MCI, 1968. Report on the Academic Survey of Nature Conservation Area, Mt. Hanla-san and Hongdo. *Animal of Mt. Hanlasan*. pp. 252-254. Ministry of Culture and Information. [in Korean].
- Nam, S.H., 1995. On the Lepidoptera of Mt. Sobaek. *The Report of the KACN*. 33: 209-220. [in Korean with English abstract].
- Okamoto, H., 1924. The Insect Fauna of Quelpart Island (Saishu-do). *Bull. Agr. Exp. Sta. Gov. Gen. Chosen*, 1(2): 106-130. [in Japanese].
- Pak, S.W., 1959. A Hand List of the Korean Moths (1) Noctuidae. 50 pp. *For. Exp. Sat.*, Seoul, Korea
- Pak, S.W., 1969. *Studies on the moths from Cheju and Koje Is. in Korea*. 131 pp. Dongmyeong Women's

Junior high school and high school. [in Korean].

- Pak, S.W., 1970, Moths from Koje Island, south side in Korea. *Japan Heterocerists' J.* 63: 38. [in Japanese].
- 박중석 (Park), 1992. 남강댐 수몰지구 곤충분야 학술조사보고서. pp.193-214. [in Korean].
- Park, J.S., D. S. Ku and K. D. Han, 1993. Faunistic Study on the Insect from Hamyang-gun and Paemsagol area of Mt Chiri. *The Report of the KACN.* 31: 153-218. [in Korean with English abstract].
- Park, J.-S. and H.-W. Cho, 1986. Insect fauna in the areas of Mt. Paegun, Mt. Kipaeg and Mt. Hwangsok in Summer season. *The Report of the KACN.* 24: 123-138. [in Korean with English abstract].
- Park, J.-S. and T.-S. O, 1988. On the Moth Fauna of Sangbongdong-dong, Chinju-city, Gyongsangnam-do, Korea. *J. Nat. Sci. Gyongsang Natl. Univ.* 4: 55-75. [in Korean with English abstract].
- Park, J.-S. and Y.-S. Yoo, 1986. On the Moth Fauna in Kumgok-myon, Gyongsangnam-do, Korea. *J. Nat. Sci. Gyongsang Natl. Univ.* 4: 17-52. [in Korean with English abstract].
- Park, K.T., S.B. Ahn, B.K. Byun and Y.D. Kwon, 1995. Macrolepidoptera of Cheju Island. *Insect of Quelpart Island.* pp.37-93. Cheju Folklore and Natural History Museum. [in Korean with English abstract].
- Park, K.T. and S.Y. Ju, 1990. The Insect Fauna of Mt. Samak. *J. Sci. & Techn. (Kangwon Nat. Univ)* 29: 379-398. [in Korean with English abstract].
- Poole, R.W., 1989. Noctuidae. *Lepidopterorum Catalogues (New Series)*, Fascicle 118, 1314 pp. E.J. Brill, Leiden.
- Seok, D.M., 1970. *The Insect Fauna of the Island Qualpart.* Bojinje. pp.83-92. [in Korean].
- Shin, Y.H., 1983. On the butterflies and moths of Mt. Chombong in summer season. *The Report of the KACN* 22: 95-107. [in Korean with English abstract].
- Shin, Y.H., 1984. On the Moth-fauna of Mt. Baekdok, Kangwon-do. *Thesis Collection, Kyung Hee Univ.*, Seoul. Korea 13: 119-138. [in Korean with English abstract].
- Shin, Y.H., 1985. On the Moths Fauna of Mt. Sorak, Kangwon-do. *Nature Conservation* 52: 28-34. [in Korean with English abstract].
- Shin, Y.H., 1987. On the Moths of Mt. Sobaek Area. *Thesis Collection, Kyung Hee Univ.* Seoul, Korea. 16: 383-409. [in Korean with English abstract].
- Shin, Y.H., 1991. On the Moth-Fauna of Mt. Kwangduk, Kangwon-do, in Korea. *Thesis Collection, Kyung Hee Univ.* Seoul, Korea, 20: 227-238. [in Korean with English abstract].
- Shin, Y.H. and J.S. Ju, 1991. Notes on the Lepidopterous Fauna of Isl. Jindo, Chollanam-do, Korea. *Nature Conservation* 75: 33-48. [in Korean with English abstract].
- Shin, Y.H., M.S. Jeong and S.S. Kim, 1990. On the Moth Fauna of Mt. Taebaek, Kangwon-do, in Korea. *Thesis Collection, Kyung Hee Univ.* Seoul, Korea. 19: 269-291. [in Korean with English abstract].
- Shin, Y.H. and S.C. Han, 1981. On the Lepidoptera of Mt. Gyeong in summer season. *The Report of the KACN* 20: 139-142. [in Korean with English abstract].
- Shin, Y.-H. and S.-K. Cheong, 1992. Lepidopterous Insects on Koje Island, Korea. *Thesis Collection, Kyung Hee Univ.* Seoul, Korea. 21: 305-324. [in Korean with English abstract].
- Shin, Y.-H. and S.-S. Kim, 1991. Notes on the Moths Collected in Mt. Chugum, Kyonggi-do, Korea from late autumn to early spring. *Nature Conservation* 76: 33-38. [in Korean with English abstract].
- Shin, Y.H. and T. W. Koo, 1974. The Lepidoptera from National Park, Mt. Naejangsan. *The Report of the KACN* 8: 127-147. [in Korean with English abstract].
- Shin, Y.H. and Y.B. Yoon, 1989. *National Survey of Natural Ecosystem (V).* Terrestrial Insect of Kyonggi-do. Report of 4th year (Terrestrial Insects). pp. 11-139. Environment Administration. [in Korean].
- Sohn, S.K., 1994. On the Lepidopterous insects of Mt. Chiak and Wonhu-si, Kangwon-do, Korea(1). *J. Lep. Soc. Kor.* 7: 42-57. [in Korean with English abstract].

- Staudinger, O., 1892. In Romanoff, Die Macrolepidopteren des Amurgebiets. I. Thiel. Rophalocera, Spinges, Bombyces, Noctuae. Mém. Lep. 6: 83-658, 10 pls.
- Sugi, S., 1982a. Noctuidae. In Inoue, H. et al., *Moths of Japan*, 1: 669-936, 2: 344-409, pls. 163-226, 355-392. [in Japanese].
- Sugi, S., 1982b. List of a small collection of Noctuidae from northern part of Korea. *Japan Heterocerists' J.* 115: 234-238. [in Japanese].
- Yoon, I.B. and S.H. Nam and D.S. Jung, 1982. A Study of Moth Fauna in Donghae City Area, Gangwondo. *Bull. Sci. & Tech., Korea Univ.* 23: 13-41. [in Korean].
- ZSK (Zoological Society of Korea), 1975. *Nomina Animaliorum Koreanorum* (2). Insect. pp.70-85.

韓國産 *Sineugraphe*屬 및 未記錄種 *S. stolidoprocta* Boursin (나비목, 밤나방科)의 整理

安聖復¹⁾, Vladimir S. Kononenko²⁾

¹⁾농촌진흥청 농업과학기술원 작물보호부, 수원, 한국

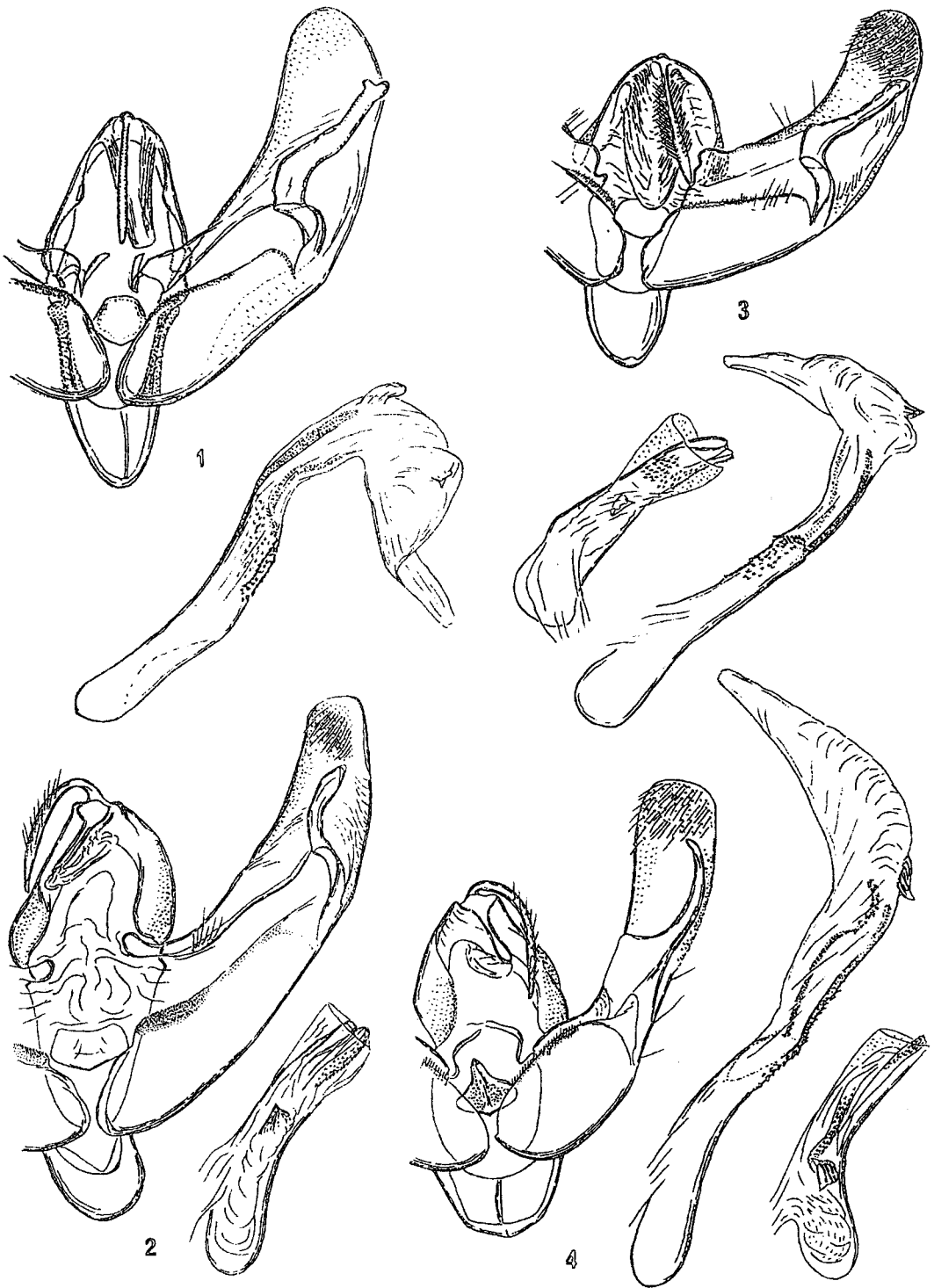
²⁾러시아과학원 극동분소 생물토양연구소, 블라디보스톡, 러시아

중국 中部와 東部에서만 기록되어 있던 *Sineugraphe stolidoprocta* Boursin (중국쌍검은밤나방 신칭)이 우리나라에서 새로이 발견되었기에 보고한다. 이로서 우리나라에 분포하는 *Sineugraphe*屬은 4種이 되며, 이들 4種의 생식기특징을 도해하고, 국내외 분포 및 형태적 특징을 논하였다.

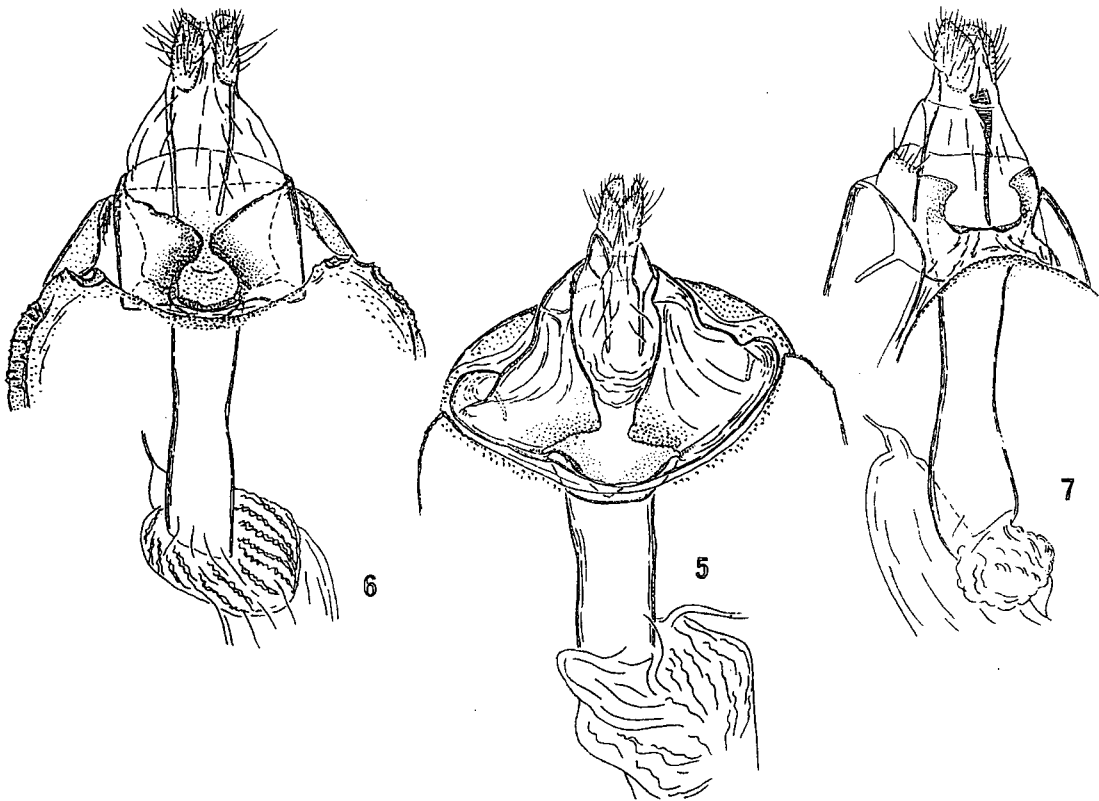
검색어 : 나비목, 밤나방科, *Sineugraphe stolidoprocta*, 미기록종, 한국

(Received: 10 January 1996)

(Accepted: 15 August 1996)



Figs 1-4. *Sineugraphe* spp., male genitalia : 1-*S. stolidoprocta* Boursin.; 2-*S. longipennis* Brsn.; 3-*S. bipartita* (Graeser); 4-*S. exusta* (Butler).



Figs 5-7. *Sineugraphe* spp., female genitalia : 5-*S. longipennis* Boursin.; 6-*S. bipartita* (Graeser); 7-*S. exusta* (Butler).